

The Facts on Water Quality and Animal Agriculture

The Michigan Department of Environmental Quality (MDEQ) receives frequent questions from concerned citizens, members of Michigan's Legislature, and farmers regarding environmental regulation of livestock operations. This Fact Sheet seeks to educate all members of the public on water quality and Michigan law as it relates to livestock agriculture.

State and federal water quality regulations created acronyms commonly used in discussing livestock operations. The first term is "CAFO" which stands for Concentrated Animal Feeding Operation. The second is "AFO" or Animal Feeding Operation. CAFOs and AFOs are all livestock operations, with CAFOs being a smaller subset of the AFO universe. In Michigan, there are approximately 20,000 livestock operations. An AFO may also be a CAFO if the number of livestock at an AFO operation exceeds a threshold number established within state and federal regulations. In the alternative, an AFO of any size may become a CAFO if water quality impacts are documented by the MDEQ. There are 219 identified CAFOs in the state of Michigan.

The threshold numbers that define an AFO as a CAFO vary depending on the species of livestock at the operation and sometimes on the growth stage of the animal. For example, a mature dairy cow operation with 700 or more cows is a CAFO; a beef cattle operation with 1000 or more cattle is a CAFO; a swine operation with 2,500 swine that exceed 55 pounds each is a CAFO; and a swine operation with 10,000 swine that weigh less than 55 pounds each is a CAFO.

In Michigan, all CAFOs are required to obtain a National Pollutant Discharge Elimination System or "NPDES" permit. The NPDES permit regulates the storage and disposal of wastes generated by the CAFO to prevent discharges to surface waters of the state. In addition, CAFOs with over 5,000 animal units are required to obtain a Groundwater Discharge Permit to protect groundwater quality. There are currently 2 CAFOs with Groundwater Discharge Permits. Michigan's Legislature has established within Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, the principles that polluting or risky activities should be controlled BEFORE water pollution occurs. Unfortunately, the federal Clean Water Act does not take such a proactive approach, but rather requires permits only AFTER discharges to waterways occur. The MDEQ is proud of its permitting program. Moreover, the MDEQ believes its 200+ permittees have made huge strides in protecting their local waters from the effects of their large operations.

The remaining AFOs in Michigan that are not CAFOs are not regulated by the MDEQ and have no legal obligation to follow various preventative practices to ensure that water quality is not impacted by discharges of waste. Also, businesses who land apply waste for AFOs and CAFOs known as "custom applicators" are also not presently regulated by the MDEQ.

Waste from both AFOs and CAFOs can have devastating effects on surface water quality if introduced in even small amounts. While the nutrients contained in manure and other wastes generated as part of any livestock operation are a tremendous benefit to growing crops, those same nutrients also cause nuisance plant and algal growth in lakes and streams, including the Great Lakes. Depending on water temperature and pH, ammonia levels in agricultural waste may be toxic to aquatic life from the base of the food chain to the very top. Of primary concern during the warm weather months of the year, agriculture waste is predominantly composed of organic materials. When that material decomposes, oxygen within Michigan's surface waters necessary to sustain life is reduced. While natural seasonal reductions in oxygen levels occur in all lakes and streams, the addition of "oxygen demanding" pollution may drop levels to a point where significant suffocation of fish and other aquatic life may occur. Finally, all manure contains microorganisms that may cause disease, similar to human waste. Those disease-causing organisms are called pathogens and may affect humans, wildlife, and livestock coming

in contact with polluted waters. Certain strains of *E. coli* bacteria are one example of these disease-causing organisms.

The MDEQ encourages livestock producers of all sizes to familiarize themselves with Michigan's NPDES permit. Whether required by state law to obtain a permit or not, the MDEQ believes that the NPDES permit's terms and conditions minimize the potential for both CAFOs and AFOs to experience a discharge of waste to waters of the state. The MDEQ CAFO general permit and related documents can be found at www.michigan.gov/deqnpdes and click on Concentrated Animal Feeding Operation (CAFO) under Information. There are a number of voluntary programs administered and supported by various organizations, including the Michigan Department of Agriculture, that provide guidelines to all AFOs on practices that the agricultural community finds acceptable. The United States Department of Agriculture's Natural Resource Conservation Service and Michigan State University Extension are also organizations that provide guidance to AFOs that may be helpful to livestock producers not required to obtain NPDES permits.